STATE OF ILLINOIS)
)
COUNTY OF COOK)

AFFIDAVIT

I, Michael H. Winegard, first being duly sworn upon oath depose and say that I am employed by Consoer Townsend Envirodyne Engineers, Inc, as Vice President; that I have read the attached Direct Testimony of Michael H. Winegard in Docket Nos. 00-0337, 00-0338 and 00-0339 (consolidated), which is identified as CIWC Exhibit 10.0, as well as Exhibit 10.1, which is attached thereto; that these documents were prepared by me or under my supervision and I know the contents thereof; that said contents are true in substance and in fact; and that CIWC Exhibits 10.0 through 10.1 are the testimony and exhibits I wish to give in this proceeding.

Further affiant sayeth not.

Michael H. Winegard, P.E.
Michael H. Winegard

OFFICIAL FILE
I.C.C. DOCKET NO. 00-0337-0339
CIWC Exhibit No. 10.0 | 10.1
Witness Winegard
Date 11/17/00 Reporter Doc

Subscribed and Sworn
to before me this
10 day of November, 2000.

Jaquenette M. Collins
Notary Public

"OFFICIAL SEAL"
Jaquenette M. Collins
Notary Public, State of Illinois
My Commission Expires April 15, 2003

DOCS1:47213.1 11/10/00 2:46 PM

C:\WINDOWS\TEMP\affidavitWinegardDirect.doc

CIWC EXHIBIT NO.10.0

CONSUMERS ILLINOIS WATER COMPANY

DIRECT TESTIMONY
OF
MICHAEL H. WINEGARD

WITNESS BACKGROUND IDENTIFICATION

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS?

A. Michael H. Winegard, Consoer Townsend Envirodyne Engineers, Inc., 303 E. Wacker Drive, Suite 600, Chicago, IL 60601-5212.

Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

A. I am employed by Consoer Townsend Envirodyne Engineers, Inc. ("Consoer Townsend") as Vice President.

Q. WHAT IS YOUR EDUCATIONAL AND BUSINESS BACKGROUND?

A. I am a 1977 graduate of the College of Engineering at Marquette University and I received a Masters of Business Administration degree with a specialization in Finance from Loyola University in 1980. I have been employed by Consoer Townsend since 1974, when I was a co-op student attending Marquette University; and as a full-time employee since 1977. I became a Vice-President of the firm in the fall of 1987.

PURPOSE OF TESTIMONY

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my testimony is to sponsor the Water Production Facilities-Comprehensive Report ("Report") which has been marked for identification as CIWC Exhibit 10.1. The Report addresses the need for new facilities in the Vermilion County Division to comply with environmental regulations ("Regulatory Compliance Facilities"). I will also discuss the recommendations of the Report.

Q. WAS THE REPORT PREPARED BY YOU OR UNDER YOUR SUPERVISION?

A. Yes.

Q. WHAT IS THE PURPOSE OF THE REPORT?

A. The purpose of the Report is to evaluate options for upgrading the quality of the finished water produced by Consumers Illinois Water Company's ("CIWC's") Vermilion County Division. Most notably, the Report evaluates options to address high nitrate levels in the finished water supply. The Report, however, also took into account other regulatory concerns impacting the Vermilion County Division including: synthetic organic compounds; disinfectants/disinfection byproducts; turbidity; and filter backwash recycle. The Report assesses various feasible methods for use in addressing the relevant concerns. In order to make a recommendation for the best and most cost-effective long term approach, projected water qualities, costs, and operational considerations were evaluated.

Q. WHAT TREATMENT OPTIONS FOR NITRATE ABATEMENT WERE CHOSEN FOR EVALUATION?

A. The options evaluated included: aquifer storage and recovery; biodenitrification; nanofiltration; side channel storage; ground water blending; ion exchange; and reverse osmosis ("RO"). Of these options, only the latter 4 were deemed feasible in light of the water quality conditions at the Vermilion County Division.

Q. DOES THE REPORT SET FORTH A COMPREHENSIVE EVALUATION OF EACH FEASIBLE APPROACH?

A. Yes. Cost estimates were prepared for each of the feasible alternatives. The analyses included estimated capital and operating costs, and a present worth analysis.

Q. WHAT ASSUMPTIONS WERE USED IN THE COST ANALYSES?

A. As discussed by Mr. Cummings, the Report utilized assumptions which are based on recent (post-1992) data. The Report assumes that 90 days of nitrate treatment would be required over a three-year period. The annual normalized number of treatment days are, therefore, 30. The analysis assumes that treatment would be applied when the nitrate concentration is 9.0 mg/l or above. Also, based on consultation with the Illinois Environmental Protection Agency ("IEPA"), the Report assumes that the alternative selected will provide treatment of nitrate concentrations of up to 15.6 mg/l. Each of the major design criteria used to examine the alternatives is set forth in Table 7-1 of the Report (Exhibit 10.1), on page 7-1.

Q. PLEASE DESCRIBE THE COST ANALYSES.

A. The economic analysis of each of the alternatives is discussed in Section 8 of the Report. Each major alternative was analyzed to project an annual present value of revenue requirement for the alternative. Both capital and annual operating costs were considered. For each analysis, an annualized operating period of 30 days was utilized. Certain costs are common to each of the analyses. These include costs associated with a bulk carbon system; filter improvements and constructing new river intakes and upgrading the Supervisory Counsel and Data Acquisition ("SCADA") System. Each of these improvements is necessary for compliance with applicable regulations and, therefore, the associated costs are common to all of the alternatives examined. As the report indicates, a cost analysis was performed for Side Channel Storage, Tables 8-3 through 8-5; Ground Water, Tables 8-6 through 8-8; Ion Exchange (co-current, counter-current and continuous contactor modes), Tables 8-9 through 8-17; and RO, Tables 8-18 through 8-20.

Q. WHAT WERE THE RESULTS OF THE COST ANALYSES?

A. The following table summarizes the results of the analyses of alternatives:

TREATMENT ALTERNATIVE	CAPITAL COST ESTIMATE	ANNUAL OPERATION & MAINTENANCE COST ESTIMATE (1999)	PRESENT VALUE OF REVENUE REQUIREMENT ESTIMATE
Side Channel Storage	$12,936,290	$ 45,000	$21,604,304
Groundwater	$12,663,290	$ 25,000	$20,770,010
Ion Exchange	$ 6,379,790	$ 95,790	$11,315,352
Reverse Osmosis	$ 7,566,290	$434,000	$17,298,741

Q. BASED ON THE REPORT, WHAT IS YOUR RECOMMENDATION?

A. Based on the present value revenue requirement analysis for the feasible treatment alternatives, CTE recommended that CIWC pursue the least-cost option, which is an ion exchange system. Specifically, ion exchange with counter-current regeneration was recommended. Also, the possibility of obtaining a new or modified National Pollutant Discharge Elimination System (" NPDES") permit to discharge the ion exchange waste to the existing pond or the sludge lagoons should be investigated, as it would further reduce both the capital and operating costs with regards to waste water disposal.

Q. IF CIWC RECEIVES APPROVAL TO DISCHARGE THE ION EXCHANGE WASTE TO THE EXISTING POND OR SLUDGE LAGOONS, WOULD THAT CHANGE YOUR RECOMMENDATION?

A No. If such approval is obtained, this would simply further reduce the present value revenue requirement for the ion exchange methodology. Implementation of the ion exchange approach is appropriate whether or not a discharge permit is granted.

Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes it does.

CIWC Exhibit 10.1

WATER QUALITY

IMPROVEMENT ALTERNATIVES

FOR THE

CONSUMERS – ILLINOIS WATER COMPANY, VERMILION COUNTY DIVISION

August, 1999

Consoer Townsend Envirodyne Engineers, Inc.
Project No. 44143

CTE ENGINEERS

CONSOER TOWNSEND ENVIRODYNE ENGINEERS, INC.

303 East Wacker Drive

Suite 600

Chicago, IL 60601-5212

Phone: (312) 938 0300

Fax: (312) 938 1109

September 7, 1999

Consumers-Illinois Water Company
Vermilion County Division
322 N. Gilbert Street, P.O. Box 1130
Danville, IL 61834-1130

Gentlemen:

In compliance with our Agreement for Engineering Services dated August 11, 1997, we are submitting our Water Quality Improvement Alternatives.

This report sets forth the results of our engineering studies on alternate plans for water treatment options, as well as supplementary water sources and includes estimated construction and other project costs.

Please feel free to contact us should you have any questions regarding the report.

Very truly yours,

CONSOER TOWNSEND ENVIRODYNE ENGINEERS, INC.

Cari Swiatek

Cari A. Swiatek
Design Engineer

Michael H. Winegard, P.E.

Michael H. Winegard, P.E.
Vice President

CAH/dp

Enclosure

\\CTECHI_NT1\CTEAdmin\Dept.Adm\Water\Corres\090399.doc

WATER QUALITY

IMPROVEMENT ALTERNATIVES

FOR THE

CONSUMERS - ILLINOIS WATER COMPANY, VERMILION COUNTY DIVISION

August, 1999

Consoer Townsend Envirodyne Engineers, Inc.
Project No. 44143

Water Production Facilities Comprehensive Report
for
Consumers-Illinois Water Company,
Vermilion County Division

TABLE OF CONTENTS

Water Production Facilities Comprehensive Report
for
Consumers-Illinois Water Company,
Vermilion County Division

LIST OF TABLES AND FIGURES

LIST OF TABLES AND FIGURES

LIST OF TABLES AND FIGURES

LIST OF TABLES AND FIGURES

CHAPTER 1

SUMMARY

Background

The Consumers-Illinois Water Company, Vermilion County Division (CIWC) serves approximately 55,000 customers in Vermilion County, Illinois from its Danville, Illinois water treatment facility. CIWC is committed to providing its customers with high quality water, which meets all of the applicable regulatory standards through the most cost-effective means. Consoer Townsend Envirodyne Engineers, Inc. (CTE) was retained to evaluate the work CIWC had done to date regarding options to upgrade the quality of the finished water, particularly in light of apparent raw water quality changes with respect to nitrate and to make a recommendation for the best long term solution for current water quality changes.

Average and maximum day water demands of the CIWC are expected to grow from their current levels of 8.0 and 12.0 mgd to 8.5 and 12.8 mgd, respectively, over the next 50 years, barring any new major industrial customers or major changes to the economic situation in the Danville area.

The Lake Vermilion raw water source is projected to contain more than enough storage volume to continue to supply CIWC during a 50 year drought through the year 2030.

Regulatory concerns impacting the CIWC and its current operation include the following:

- Nitrates
- Synthetic Organic Compounds
- Disinfectants/Disinfection By-products
- Turbidity
- Filter Backwash Recycle

The existing treatment facilities at the CIWC's Vermilion County Division include the unit processes of chemical addition, softening, clarification, recarbonation, filtration and disinfection. The plant typically operates in one of three modes:

- Conventional
- Herbicide & taste and odor removal
- Treatment of high turbidity waters

Several recommendations have been presented to improve the current operation, as well as areas worth exploring from an operational perspective which may lead to improved quality or reduced costs.

Design Criteria

Alternative treatments were developed and evaluated based on the following design criteria:

Flow	10.0 mgd
Maximum Treated Water Nitrate Concentration	9 mg/l
Raw Water Nitrate Concentration	12.7 mg/l (average)
	15.6 mg/l (maximum)